EXECUTIVE SUMMARY

The Ninemile Creek watershed is a forested drainage, encompassing approximately 119,000 acres located primarily in Missoula County. The Ninemile Creek Watershed (also referred to in this document as the Ninemile TMDL Planning Area, or NTPA) is one of more than 90 TMDL planning areas in the State of Montana in which water quality is currently or was previously listed as impaired or threatened. In each of these TMDL planning areas, the State of Montana is required to develop TMDLs to reduce pollutant loading and eliminate other negative impacts to water quality in impaired and threatened water bodies.

Located primarily within Missoula County, Montana, the Ninemile TMDL Planning Area is comprised of lands managed predominately by the United States Forest Service (USFS). The major waterbody in the Ninemile TPA is Ninemile Creek, a tributary of the Clark Fork River. Nine waterbodies within the planning are currently on the Montana 303(d) list and are the subject of ongoing TMDL development efforts in support of which this report has been assembled. The listed causes of impairment include flow alterations, habitat alterations, siltation, and metals (copper, lead, zinc, and mercury). A watershed-scale approach was used to evaluate the beneficial uses in the following waterbodies:

- Big Blue Creek
- Josephine Creek
- Upper McCormick Creek
- Lower McCormick Creek
- Little McCormick Creek
- Kennedy Creek
- Stony Creek
- Cedar Creek
- Ninemile Creek

Table E-1, provides a summary of how each of these waterbodies were addressed in this Water Quality Restoration Plan (WQRP).

Although habitat alterations are the most common listed causes of impairment in the Ninemile TPA, the EPA does not require TMDLs for habitat alterations, which are considered pollution, not pollutants. However, as an added measure of protection for beneficial use support, habitat alterations were assumed to represent potential sources of sediment, and a sediment source assessment was conducted for all of the listed streams.

It has been determined that the cold-water fishery and aquatic life beneficial uses in Big Blue, are fully supported. This waterbody is not considered impaired due to habitat or sediment-related causes (siltation) and therefore, no TMDLs are required. TMDLs have been prepared for all of the other listed waterbodies in the Ninemile TPA.

To help address any assumptions or uncertainties that arose, a monitoring strategy is developed as part of this WQRP. Additionally, a phased study is suggested that will help better define potential dewatering and flow alteration issues in the Ninemile TPA.

Table E-1. Summary of Required TMDL Elements for the Ninemile TMDL Planning Area.

Water Bodies & Pollutants of Concern	11 individual water body/pollutant combinations described as follows: - Big Blue Creek (pollutants: habitat alterations) - Josephine Creek (pollutants: habitat alterations) - Little McCormick Creek (pollutants: habitat alterations; flow alterations) - McCormick Creek - upper (pollutants: habitat alterations) - McCormick Creek - lower (pollutants: habitat alterations) - Kennedy Creek (pollutants: metals, siltation, dewatering, flow alterations) - Stony Creek (pollutants: habitat alterations; siltation) - Cedar Creek (pollutant: habitat alterations) - Ninemile Creek (pollutant: habitat alterations; siltation)
Section 303(d)(1) or 303(d)(3) TMDL	- 303(d)1
Impaired Beneficial Uses **Impaired vs threatened??**	- Big Blue Creek (impaired uses: cold water fish) - Josephine Creek (impaired uses: cold water fish) - Little McCormick Creek (impaired use: aquatic life, cold water fish, drinking water, and recreation) - McCormick Creek - upper *(*impaired uses: cold water fish*)* - McCormick Creek - lower (impaired uses: aquatic life; cold water fish) - Kennedy Creek (impaired use: aquatic life, cold water fish, drinking water, and recreation) - Stony Creek (impaired uses: cold water fish) - Cedar Creek (impaired uses: cold water fish) - Ninemile Creek (impaired use: aquatic life; cold water fish)
Pollutant Sources **All sources or just pollutants?**	- Habitat alterations and siltation from agriculture, range land, silviculture, resource extraction, placer mining, highway/road/bridge construction, irrigated crop production, pasture land, stream bank modification/destabilization, abandoned mining, and channelization. - Metals (copper, lead, zinc, and mercury from – abandoned mining, resource extraction - Dewatering/flow alteration from abandoned mining, placer mining, resource extraction, and agriculture
Target Development Strategies	- In-stream sediment loads comparable to reference conditions - Biological targets that represent full support of biological conditions - Secondary indicators to help ensure use support of beneficial uses
TMDLs	- Buck Creek: no TMDL; waterbody fully supports beneficial uses - Josephine Creek: 54.8 tons/year, a 92.8% reduction in sediment loading. - McCormick Creek[1]: 164.5 tons/year, a 92.2% reduction in sediment loading. - Kennedy Creek: 49.9 tons/year, a 93.8% reduction in sediment loading. Metals loading reduced to levels allowed by Montana numeric water quality standards (discharge and hardness dependent) - Stony Creek: 55.9 tons/year, a 28.8% reduction in sediment loading - Cedar Creek: 55.6 tons/year, a 60.9% reduction in sediment loading - Ninemile Creek: 2,868, a 74.3% reduction in sediment loading
Allocation	- Big Blue Creek: No allocation; waterbody fully supports beneficial uses - Josephine Creek: A 92.8% reduction in sediment loading from forest roads and mining - McCormick Creek1: A 92.2% reduction in sediment loading from forest roads and mining - Kennedy Creek: A 93.8% reduction in sediment loading from forest roads and mining; metals loading reductions from mining-related sources sufficient to reduce metals concentrations to below state standards - Stony Creek: A 28.8% reduction in sediment loading from forest roads - Cedar Creek: A 60.9% reduction in sediment loading from forest roads, agriculture, and timber harvest - Ninemile Creek: A 74.3% reduction in sediment loading from forest roads, fire, timber harvest, agriculture, and mining.

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Restoration Strategies	- Upgrade forest roads to meet Montana Forestry BMPs; - Reclaim forest roads that are surplus to the needs of forest managers; - Implement Montana's Forestry BMPs on all timber harvest operations; - Continue post fire restoration and sediment mitigation efforts; - Encourage riparian restoration and implementation of agricultural BMPs. - Manage noxious weeds - Promote non-structural erosion control - Upgrade undersized culverts over time to better accommodate large floods and reduce the risk of culvert failure; - Correct priority fish passage barriers that are significantly affecting the connectivity of native fish habitats. - Continue riparian management and monitoring in areas impacted by livestock use; - Encourage flood plain development setback. - Pursue funding for restoration of historic mining impacts - Coordinate with the local watershed group to implement TMDL recommendations on private land and to bring local residents and land owners into the TMDL and watershed restoration process.
Margin of Safety	- Conservative assumptions were used in all source assessment modeling. - Metals targets are based on state numeric water quality standards which contain an inherent MOS. Additional restoration targets based on sediment toxicity, biota measures, and stream deposits are also presented as an additional margin of safety to ensure full support of aquatic life and cold water fishery beneficial uses. - The suite of proposed supplemental indicators is intended to help verify target compliance and full beneficial use support. - The proposed supplemental indicators may also provide an early warning method to identify pollutant loading threats that may not otherwise be identified. - The WQRPs presented in this document go beyond what is required by the EPA for TMDL development by including restoration and monitoring for non-pollutants such as habitat alteration, dewatering, and non-listed pollutants such as temperature. By doing so, the WQRPs provide a holistic approach to water quality restoration and thus an additional MOS for beneficial use support. - A large amount of data and assessment information were considered prior to finalizing any impairment determinations. Impairment determination were based on conservative assumptions that error on the side of keeping streams listed and developing TMDLs unless overwhelming evidence of use support was available. -
Seasonal Considerations	- Source assessment modeling of sediment loading inherently incorporates runoff flows when erosion is greatest. Metals assessment included both high and low flow sampling. - Targets where developed with seasonality in mind: metal targets include seasonal fluctuation in water hardness upon which standards are based; the % <6 fine sediment target data is collected in the summer, after the flushing flows have passed; macroinvertebrate and periphyton targets and supplemental indicator data is collected during the summer months when these biological communities most accurately reflect stream conditions. - Throughout this document, the data reviewed cover a wide range of years, seasons, and geographic area within the Ninemile TPA.

[1] The McCormick Creek TMDL includes upper, lower, and Little McCormick Creeks, which are all part of the McCormick Creek watershed.
*SCD = Sufficient and Credible Data as identified in 75-5-702, MCA.